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## FIELD NOTES ON THE CLIMBING BAMBOOS OF PORTO RICO

AGNES CHASE

(WITH PLATE XXI)

In two months spent in the study and collection of grasses in Porto Rico in the fall of 1913, the writer became acquainted with the habits and field aspect of the beautiful and interesting climbing bamboos of the island. The botanical descriptions published, having been drawn from herbarium material, fail to give much idea of the appearance of the living plants.

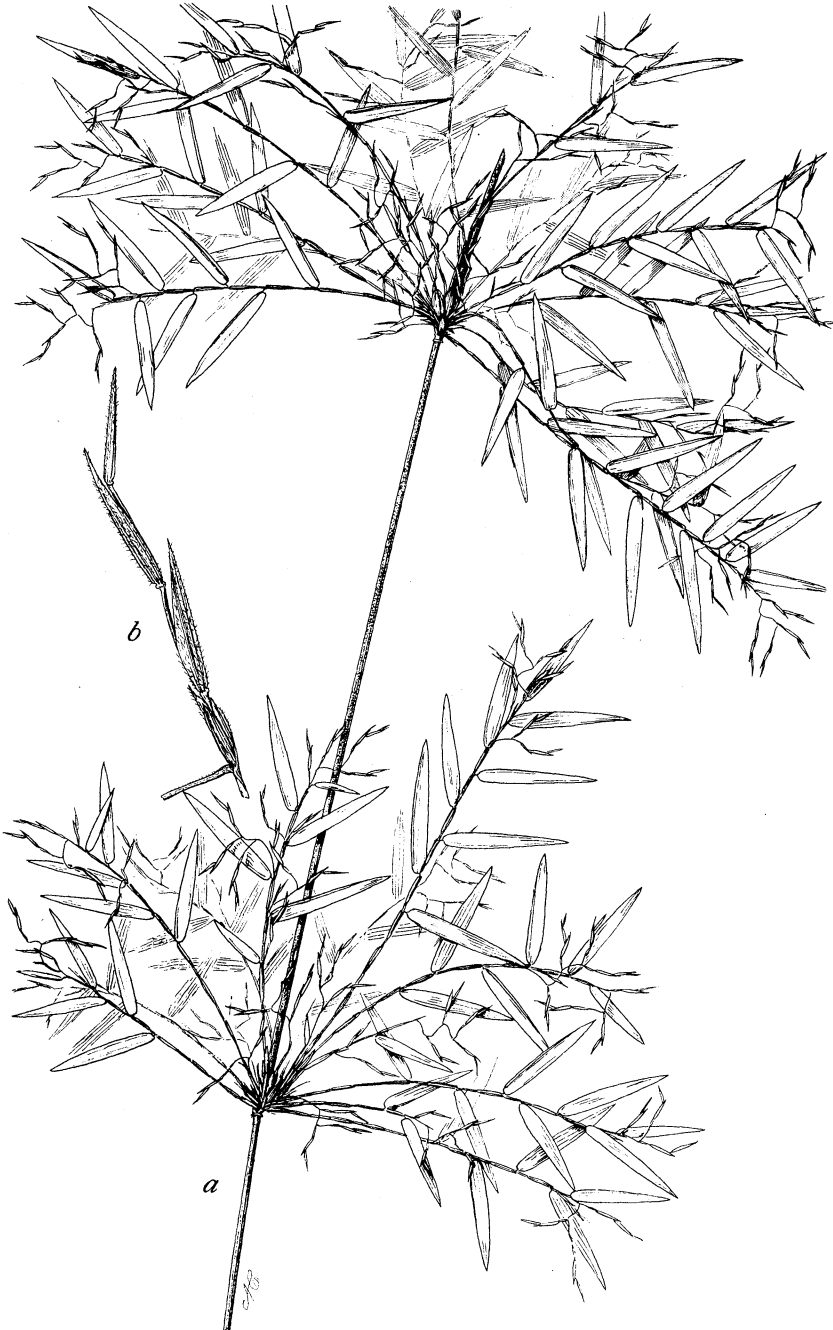
The climbing bamboos, with the tree ferns and mountain palms, are characteristic of the mountain regions from 2000 feet altitude upward to the summits. At present four species are known: *Arthrostylidium multispicatum* Pilg., *A. sarmentosum* Pilg., *A. angustifolium* Nash, and *Chusquea abietifolia* Griseb. Sterile plants of the last were collected by Dr. F. L. STEVENS and Mr. W. E. HESS on Monte Alegrillo in November 1913, but this species was not found by the writer. The three species of *Arthrostylidium* have much the same habit, climbing high, repeatedly branching, and in their greatest development swinging down in great curtains from the trees overhanging trails or streamlets. They love the glints of sunlight along the trails or water courses and are very rarely found in deep shade. On mature culms two sorts of branches are produced, short leafy ones in whorls at the nodes, and elongated ones which bear whorls of short leafy branches and branch again, the process being repeated until at times a slope for several yards is bound together in a tangled mass.

*Arthrostylidium angustifolium*, a species very closely related to the Cuban *A. capillifolium* Griseb., I found only once near a cataract at some 3000 feet or more in Indiera Fria. This has linear blades, 2 to 4 mm. wide and as much as 30 cm. long, crowded on short sterile branchlets which are arranged in dense whorls at the distant nodes of the slender culms. These culms hang straight 20 or 30 feet from trees 40 or 50 feet high, or festoon themselves over

lower growth, the dense masses of foliage like great pompons strung along the stems at distant intervals. From these whorls occasionally spring slender, divaricate, elongated branches bearing leafy tufts like those of the main culms, but less dense and with shorter blades, the ultimate branches almost capillary and bearing but a single leaf at a node.

*Arthrostylidium multispicatum* occurs on most of the wet higher mountains. The slender naked growing ends of the culms and branches are beset with very short, sharp-pointed retrorse prickles. These ends, from 5 to 12 feet or more long, swing in the breeze like whip lashes until they strike a place to take hold. Only after attaching themselves to some support do the leaves and branches develop from the clusters of short, sharp, radiating, scale-covered branch buds. The prickles later fall off, the old culms being smooth. These long grappling branches are freely produced, resulting in an inextricably tangled mass that draws blood at every foot of one's progress through it. The short leafy branches are rather less densely whorled than in either of the other species, there being from few to about 20 at a node. The lanceolate, not crowded, blades are 6-8 cm. long and 10-12 mm. wide, or, on vigorous shoots in rich spots, 10 cm. long and 2.5 cm. wide.

The most beautiful and interesting of the climbing bamboos is *Arthrostylidium sarmentosum*. This I found on nearly every wet high mountain, having collections from ten stations. It had been collected before in but three stations and was unknown in flower, the original description having been drawn from sterile specimens. Among mountain palms on the forested north slope of El Yunque (ascending from Rio Grande), at about 3000 feet altitude, it was found in abundant bloom December 2, 1913 (CHASE no. 6730). This is the only time it has been known to flower. The conditions here, so far as could be seen, were in no way different from those under which it grew elsewhere and failed to bloom. Fifty herbarium specimens were prepared and several have since been distributed to herbaria in this country and in Europe. The inflorescence consists of short-exserted, terminal and axillary, strongly zigzag racemes of 2-5 spikelets, the rachis joints flat on one side, minutely ciliate on the edges, a strong pulvillus at the base of each joint forcing it to bend back at right angles to the joint below.



CHASE on ARTHROSTYLIDIUM

Spikelets sessile, 12-20 mm. long, slender, the slender, clavate rachilla joints zigzag, 3-5 mm. long; glumes 3 or 4, approximate (the lower internodes of the rachilla about 0.1 mm.), the strong midnerves hispidulous toward the summit, the lowermost glume acuminate or setaceous, 2.5-3 mm. long, the uppermost acute, 4-4.5 mm. long, about equaling the rachilla joint; florets 2 or 3, nearly terete, 6-8 mm. long, distant, one-third to one-quarter longer than their rachilla joints; lemma lanceolate, acuminate, pubescent, with three strong nerves and one or two pairs of faint intermediate nerves; palea membranaceous, slightly shorter than its lemma, broad, obtuse, deeply folded between the ciliate keels; stamens 3; stigmas 2, plumose.

From my observations, I think this species forms an exception in the bamboos in that the culms are not perennial but herbaceous, dying down each year. When first seen along the Rio Maricao, the middle of October, there were numerous young culms, from a foot or two to six or eight feet long, crawling on the ground or beginning to climb. Hanging in the trees overhead were quantities of frayed dead stems falling to pieces when touched. By the last of December this species was high in the trees and hanging down like the other two species. There are no strong culms as in other bamboos or in *Lasiacis*; the largest found is but 3 mm. in diameter. The culms are not more woody in texture than are those of some of our species of *Panicum* or *Andropogon*. Since there is neither winter nor dry season, there seems to be no reason why the plants should die down, but apparently they do die down like ordinary grasses that are perennial by underground parts only. It is a most airy, graceful, delicately beautiful species, the long, slender, vinelike culms with their clusters of pale green foliage festooning the trees or hanging free from the long limbs above a trail or rivulet and suggesting a lacy veil. The foliage becomes glaucous in drying, but in the growing plants is a light but not grayish green.

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#### EXPLANATION OF PLATE XXI

*Arthrostylidium sarmentosum* Pilg.: a, portion of culm with inflorescence,  $\times\frac{1}{2}$ ; b, spikelet with portion of rachilla,  $\times 3$ .